NCPTT Annual Report National Park Service



U.S. Department of the Interior

A Publication of the National Center for Preservation Technology and Training

www.ncptt.nps.gov

Mission Statement

NCPTT advances the use of science and technology in historic preservation. Working in the fields of archeology, architecture, landscape architecture and materials conservation, the Center accomplishes its mission through training, education, research, technology transfer and partnerships.

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PTT Grants

\$410,268 awarded to 12 proposals in 2004 grant cycle

IMPACTING WORLD PRESERVATION



2004 and Beyond







Technology Essential to the NPS Mission

The National Center for Preservation Technology and Training is very excited to present the Annual Report for the Fiscal Year 2004 to our many friends and partners in the National Park Service, other government agencies, universities, laboratories and private

our present ones.

groups and throughout the historic preservation community. We appreciate the increased partnerships and support of all of these groups throughout the United States and through them we will continue to expand our research and contribution to the nation's stockpile of information on preservation technology. We welcome all new constituencies while we thank

NCPTT has made major progress in 2004 in its legislated role to empower preservation

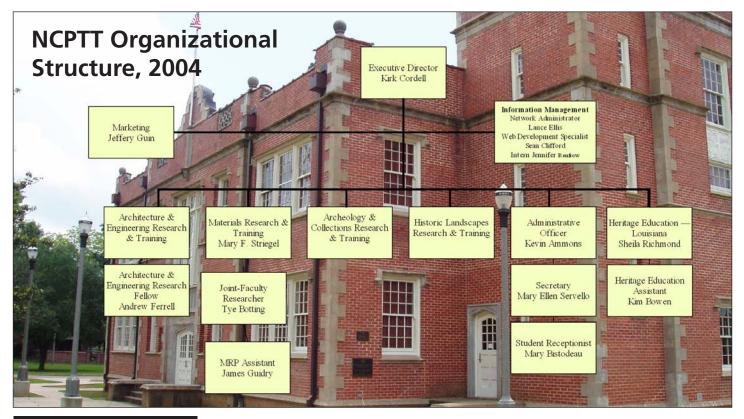


By Roy Eugene Graham PTT Board Chair

professionals and groups in order to protect and conserve the nation's cultural resources by developing skills and technologies, facilitating training in prioritized technical areas, applying preservation technology benefits from ongoing research, facilitating the transfer of this highly specialized technology among state and private sectors, and cooperating with other national and international organizations with similar goals.

The Professional Development Program for Engineers, which has been working for three years to target engineering professionals from the architectural, civil, structural and mechanical engineering disciplines held four new courses in the Summer Institute, and acquired additional partners: Architectural Engineering Institute and the American Institute of Architects among others. A major technical study on concrete was begun with the Athenaeum of

continued on page 2



NCPTT GOALS

- 1. Emphasize preservation technology research.
- 2. Train professionals in new technologies.
- 3. Serve as a knowledge center.
- 4. Convene leading authorities.
- 5. Promote cultural stewardship through education

RESEARCH PRIORITIES

- 1. Protect cultural resources against vandalism, looting and terrorism.
- 2. Conserve modern architectural materials.
- 3. Meet the preservation needs of houses of worship and cemeteries
- 4. Evaluate previously applied preservation treatments.
- 5. Measure impacts of pollution on cultural resources.
- 6. Preserve threatened cultural landscapes.

Philadelphia. NCPTT broadened its initiative to partner with the AIA/Historic Resources Committee and the National Association of Collegiate Schools of Architecture to better integrate historic preservation into the basic curriculum of professional architecture degree programs. These efforts will also lead to unite proponents of preservation and the sustainable design movement. Other areas of advocacy, activities and research include affordable housing, community revitalization, appropriate infill and redevelopment strategies, GIS, materials conservation, urban historic archeology and cultural landscape issues.

The Materials Research Program, already partnering successfully with parks, laboratories, government agencies and universities, sharpened its activities in 2004 to include new research in partnership with the Department of Veteran's Affairs and the Cane River Creole National Historical Park. Continuing to be a major program was the national cemetery preservation initiative which produced several regional seminars and workshops in the mid-Atlantic, Northwest, central-South, as well as Louisiana. It is anticipated that workshops will be held with local preservation groups in Oregon and Florida, as well as other parts of the United States. The NCPTT Environmental Exposure Chamber was upgraded and new equipment was added to

the lab in order to increase the efficiency of the ongoing air pollution deposition studies on consolidated stone and the DuPont stone protectant treatments. Summer interns from all over the country strengthened and enhanced these research projects.

Based on the recommendations of a professional review panel, NCPTT awarded a total of 12 PTTGrants, with awards totaling \$410,268.

Continuing the tradition of partnerships, the NCPTT co-hosted the 2004 US/ICOMOS International Symposium in Natchitoches on "Preservation and Stewardship of Cultural and Ecological Landscapes." The assembly was well attended from all parts of the country and resulted in the "Natchitoches Declaration on Historic Landscapes." Additional partners included the Cane River Creole National Historical Park and the Cane River National Heritage Area.

NCPTT, in making and planning great strides in its mission to advance the use of science and technology in historic preservation in 2004, has become the essential source of knowledge and research that enables not only the National Park Service, but other government and private agencies, to carry on their own missions of cultural resource management. Its programs and activities are making an impact on historic preservation not only in the United States, but around the world.

In Review — 2004

NCPTT Hosts National Preservation Events; Named 'Preservationist of the Year'

NCPTT Hosts US/ICOMOS Conference

NCPTT Hosted the seventh annual meeting of the International Council on Monuments and Sites March 25-27, 2004. The conference was attended by 150 people from around the globe responsible for managing and supporting the conservation of built heritage. Participants were briefed on NCPTT's research and given tours of its headquarters at Lee H. Nelson Hall. PTT Board member Norman Weiss also instructed ICOMOS participants in the Center's pioneering efforts in the field of cemetery conservation training.

Fourth Annual Preservation in Your Community Event Focuses on Preserving Buildings and Outdoor Monuments

On July 28, interns and staff at NCPTT presented their work during the fourth annual "Preservation in Your Community" event at Lee H. Nelson Hall. The event was titled "An Ounce of Preservation: Preserving Buildings and Monuments in Natchitoches and across the Nation."

Interns Eric Broaddus, Seth Fornea, Andy Jacob, Ligy John, and Harriet Swift presented their summer research at NCPTT.

Additionally, the Center debuted the exhibit "Preserving Memory: America's Monumental Legacy." The 25-panel exhibit was created by Save Outdoor Sculpture! to create an awareness of the important cultural role outdoor monuments play in America and the efforts being made to preserve them.

NCPTT and its National Park Service partners hold Preservation in Your Community events each summer to inform the public about local preservation efforts.

Louisiana Preservation Alliance Names NCPTT Partnership "Preservationist of the Year"

NCPTT was named "Preservationist of the Year" at the recent Louisiana Preservation Alliance Conference, which was also hosted by the Center. The award recognized NCPTT's partnership with the Cane River Creole National Historical Park, the Cane River National Heritage Area, and other preservation organizations for its co-



operative effort in advancing preservation in the Cane River area and the city of Natchitoches, Louisiana.

NCPTT Partners with Olmsted Center to Develop Landscape Plan for Lee H. Nelson Hall

In an effort to enhance the native beauty to the landscape at its headquarters in Lee H. Nelson Hall, NCPTT has contracted the prestigious Olmsted Center for Landscape Preservation to develop a landscape plan. The plan is a result of the efforts of Chris Stevens, a landscape architect with the Olmsted Center, who researched NSU library collections and physical plant files for archival photos and descriptions of the campus.

Stevens has produced a detailed planting plan that incorporates plant and tree species native to the north Louisiana area where Nelson Hall is located. A mound of large leaf magnolias, a paw-paw patch, and a camellia hedge are just some of the unique plantings proposed. The plan also calls for the addition of new shade trees.

Above: National Park Service Director Fran Mainella cuts a cake honoring the anniversary of the founding of the National Park Service during a reception at NCPTT on Aug. 24. Singing happy birthday to the NPS with Mainella are Natchitoches Mayor Wayne McCullen; Kirk Cordell, NCPTT executive director; Saidee Newell, Cane River National Heritage Area Commission co-chair; Laura Gates, Cane River Creole National Historical Park director; and Nancy Morgan, Cane River National Heritage Area executive director.

Preserving the Legacy of the Nation's Capitol MRP Brings Cutting Edge Cemetery Conservation to D.C.;

Works with GSA on Studies of Historic Terrazzo



Samples of historic brick are being cored and prepared for study of traditional lime wash recipes.



Above: NCPTT's laser profilometer being used to evaluate the surface of terrazzo cores.

CPTT's Materials Research Program works in partnership with parks, laboratories, government agencies, universities and others to understand how cultural objects deteriorate with time. The program's goals are to (1) understand cultural resources decay, (2) develop and evaluate conservation treatments to protect cultural resources and (3) disseminate scientific results and preservation technologies through presentations, publications, and training for preservation professionals nationwide. A special interest within the program is the study of outdoor air pollution effects on cultural materials.

In 2004, NCPTT strengthened its partnerships with other federal agencies through two new projects bringing in more than \$200,000 in research dollars to NCPTT. By entering into interagency agreements with the General Services Administration and the National Cemetery Administration, NCPTT can more effectively fulfill its mission to test preservation technologies. In addition, the Center continued its successful cemetery monument conservation training through a partnership with Historic Congressional Cemetery in Washington, DC. Closer to home, the Materials Research Program partnered with the Cane River Creole National Historical Park in Natchitoches, Louisiana to evaluate appropriate traditional lime washes for use within the park.

Validation of a treatment for Historic Terrazzo Floors

Through partnership with the General Services Administration (GSA), NCPTT began studies of vitrification as a valid process for maintaining and treating historic terrazzo floors. This year-long project grows out of GSA's need to develop a policy for treatment of historic terrazzo flooring in federally-owned buildings based on sound scientific studies. GSA has three main concerns regarding vitrification as a treatment for historic terrazzo. The first concern is that vitrification is an irreversible, permanent chemical alteration of the floor surface. The second concern is that vitrification may affect the ability of moisture to move through terrazzo. The third concern is that the mirror-like appearance of vitrified terrazzo might not be appropriate for a historic floor.

Based on these concerns, staff at NCPTT developed a testing regime to evaluate the effects of vitrification on terrazzo. Studies will determine water vapor transport, water permeability, chemical surface alteration, and changes in appearance, among other properties. Vitrified, waxed, and sealed samples are being evaluated and compared to determine more fully these physical and chemical changes.

The quantitative results of this analytical testing will help us to better understand how vitrification affects terrazzo flooring and will give us means to effectively evaluate vitrification as an appropriate treatment for historic terrazzo.

Headstone Cleaning: Testing Biological Growth Removal Products.

Building on the current successes in cemetery monument conservation workshops and seminars, NCPTT partnered

with the National Cemetery Administration (NCA), an agency of the Department of Veteran's Affairs (VA), to investigate appropriate treatments for cleaning and maintaining government-issued marble headstones for veterans.

This two-year project brings together a multidisciplinary team to test a range of commercially available products used to clean headstones. Experts at the NCA are choosing representative headstones from National Cemeteries across the country for testing. Staff members at NCPTT are designing scientifically sound experiments, evaluating test criteria, and aiding in choosing commercial products for testing. Microbiologists from Harvard University are assisting NCPTT in evaluating the range of micro-organisms growing on headstones in five climatic regions across the nation. They will help evaluate the treatments' effectiveness of removing biological growth and preventing re-growth on headstones.

A series of evaluation and cleaning campaigns will be undertaken over the next two years. Products will be evaluated based on their cleaning effectiveness, inhibition of regrowth, ease of use and application, environmental and human safety, and potential long-term stone damage. Employing national cemeteries provides a unique opportunity to evaluate products and develop conservation treatments on headstones of similar shape, size and stone composition. The findings will be applicable to national cemeteries under the jurisdiction of VA, DOI and the Department of the Army, as well as private cemeteries nationwide.

Mid-Atlantic Cemetery Monument Conservation Seminar and Workshop, May 4-6, 2004, Washington, DC

NCPTT partnered with the Historic Congressional Cemetery Association to host a one-day seminar and two-day hands-on workshop on technologies to preserve cemetery monuments and grave markers. The seminar was held at the Charles Sumner School in downtown Washington D.C. Forty participants from a variety of backgrounds participated in the event. Topics ranged from the value of cemeteries to undertaking condition surveys. Workshop events took



place in Congressional Cemetery and used a highly successful round-robin format to engage participants in essential cemetery preservation activities. The workshop included 26 participants who tried their hand at techniques such as resetting, pinning, cleaning or consolidating stone among other topics.

Participants in the 2004 Cemetery Monument Conservation workshop learn how to clean headstones.

Evaluation of Traditional Lime Wash for Use on Historic Buildings in the Cane River Creole National Historical Park

NCPTT and the Cane River Creole National Historical Park partnered to test three traditional lime wash recipes using two domestic lime sources for use on historic slave quarters and other buildings within the park. The resulting lime washes are being evaluated based on their ability to adhere to brick or wood surfaces, and how they behave in artificial aging tests. This project brings together historians and craftsmen from the park with scientists from NCPTT. The project also involves two student researchers from the Louisiana School for Math, Science, and the Arts (a preeminent state supported residential high school with competitive admissions for high ability students).

Preserving the Integrity of Our Built Environment

Summer Institute Features National Park Service Structures to Teach Preservation Principles in Architecture and Engineering



Instructor Mel Green discusses an architectural problem with one of the breakout teams.

CPTT's Architecture and Engineering Program encourages research and partnerships with organizations and institutions working to advance preservation technology for buildings and other structures.

Program Activities

Preservation Engineering. Since 2001 NCPTT has been working with partners to develop a preservation engineering curriculum and to prepare instructional materials for professional development courses. The Professional Development Program for Engineers in Historic Preservation serves engineering professionals from the architectural, civil, structural, and mechanical engineering disciplines and technically-oriented architects and graduates (MS) of historic preservation programs. The four courses include Materials and Older Buildings, Building Pathology, Investigations & Diagnostics Methodology, and Treatment Strategies and

Interventions. The Center is looking for partners to develop additional courses.

Summer Institute. NCPTT premiered the Summer Institute over a two week period from July 13-23, 2004. Featuring the courses mentioned above, the Summer Institute is a venue that allows professionals to earn continuing education units while also reaching out to faculty across the nation and, eventually, to top students in engineering, architecture and related fields. Partners included the Architectural Engineering Institute (AEI) of the American Society of Civil Engineers, the American Institute of Architects (AIA) Historic Resources Committee, Northwestern State University, Cane River Creole National Historical Park, Cane River National Heritage Area and the Association for the Preservation of Historic Natchitoches. Continuing education units were available from the AEI and AIA. The courses were enthusiastically received by the participants. The next Summer Institute will be held June 14 - 24, 2005.

Concrete Publication. This project with the Athenaeum of Philadelphia will lead to a one-of-a-kind resource on the history of concrete. Based on the extensive notes of Charles Peterson, founder of the National Park Service's Historic American Buildings Survey, this project will organize, edit and publish a substantial body of information pertaining to the origins of concrete construction. Peterson's papers on concrete are held at the Athenaeum. The technical subject matter of the study will be specifically comprised of the following:

a) Concrete construction prior to the introduction of steel reinforcing (development of ferroconcrete).

- b) Cements and mortars using naturally occurring hydraulic materials
- c) Cements and mortars using early artificial Portland cements.

AIA/HRC Preservation Education Task Force. NCPTT is partnering with the AIA/Historic Resource Committee's Preservation Education Task Force to provide direction for a multi-year initiative to better integrate historic preservation into the basic curriculum of professional architecture degree programs and to explore opportunities for focused preservation education at the graduate level. Efforts have resulted in the incorporation of preservation-related language into the 2004 Student Performance Criteria issued by the National Architectural Accrediting Board (NAAB). NAAB uses these standards in accrediting all architecture programs leading to the professional architecture degree. The first of a series of symposia addressing these issues is scheduled for November 19-21, 2004, at the AIA headquarters in Washington, DC. Several follow-up meetings are scheduled for 2005.

Lee H. Nelson Hall Historic Landscape Report and Planning. NCPTT has been working with the Olmsted Center for Landscape Preservation (OCLP) to complete a cultural landscape report for NCPTT's headquarters site. The landscape plan focuses on completing an appropriate planting plan for the area surrounding the building, but it also considers small-scale landscape features. The plan is based on an understanding of the site's historical development and its relationship to the two local historic districts. The planting plan was completed at the beginning of October and the Cultural Landscape Report was nearing completion at the end of FY 04.



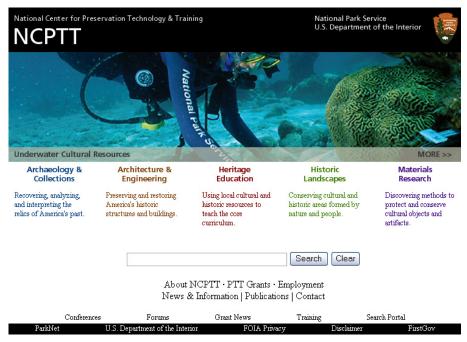
A Summer Institute participant explores African House to discover more about the building's structure in preparation for group presentations later in the course.





Taking NCPTT to the World

Information Technology Component Revamps Website, Improves Infrastructure



The NCPTT website is undergoing an extensive renovation to improve user friendliness and functionality. To visit the site, go to www.ncptt.nps.gov.

he information technology component of NCPTT is comprised of four elements: information management of grants and projects, the Internet program, in-office computer systems, and publication distribution. Exciting new enhancements have been made to all four components to achieve the Center's principal goal of fostering development of, access to, and dissemination of preservation-related information. Access to information via electronic means is strongly promoted.

Grants and Projects

This year marked the second year NCPTT will utilize its in-house custom-built on-line grants system. With the addition of Sean Clifford, NCPTT's recently hired web developer, the PTT grants system has been reshaped into an SQL database-driven webbased application that is more powerful and easier to use than its predecessor.

Internet Program

NCPTT's Internet program encompasses all projects that are Internet-based and enhance NCPTT as a leader in the electronic dissemination of information. Among the new additions to the NCPTT website for the coming year will be a reorganization of the site's

knowledge center, more intuitive labels, the introduction of the NCPTT Portal and a new on-line catalog. In anticipation of greater traffic on NCPTT's website in the coming years, the site is in the process of being moved to a new high-speed server that will contain a host of new and improved web tools.

In-office Computer Systems

In an effort to keep hardware current, the information management staff applies the National Park Service IT guidelines of replacing PC's every three years. During FY2004, twelve Pentium IV workstations and three Intel Xeon servers were ordered for installation in FY 2005. Software upgrades have incorporated the Windows XP operating system for workstations and Windows 2003 Enterprise Server for servers. Additionally, NCPTT's network connection to the internet has been improved this year with the installation of a second high speed 1000 gigabit interface module that connects NCPTT's 10/100Base-T Cat 5e networking infrastructure with Northwestern State University's fiber optic LAN.

One of the new servers will be for the housing of the Cane River National Heritage Area's GIS database. During September of 2004 the Center hosted the training of ArcView 8.3 for the purpose of training local people on how to access the GIS database that will be housed at the Center.

Publication Distribution

One of the major functions of the NCPTT website is to provide a central location to search for preservation publications. In FY 2004 a total of 247 publications were mailed to the public by NCPTT IT staff.

NCPTT's in-house library is in the latter stages of a major enhancement. The IT staff is cataloging all library books and periodicals and will post NCPTT's library database via the NPS network for other offices and parks to enter into a publications-loaning program.

Leaving a Legacy of Learning

Workshops on Cemeteries Among Heritage Education — Louisiana's Most Successful

In fiscal year 2004 Heritage
Education— Louisiana (HE-LA)
continued to work at meeting the
needs of classroom teachers who must not
only cover curriculum standards and benchmarks, but must also consider high-stakes
testing. Classroom teachers, preservation
specialists and education specialists have
been consulted to ensure that the program
meets preservation ethics and provides
professional development for teachers in
innovative and evolving educational theory
and techniques.

Workshops

In Summer 2004, using historic cemeteries in Natchitoches, Ruston, Abbeville, and Metairie, staff from Northwestern State University's College of Education and Heritage Education – Louisiana guided 56 teachers from around the state in using local cemeteries to create curriculum-based, interdisciplinary lessons. Participating in Exploring the Past: Touring Cemeteries, K-12 teachers visited individual cemeteries gathering data, and then used the data in Math, Science, English Language Arts, and Social Studies activities.

Mini Grants

In 2004 Heritage Education - Louisiana provided more than \$40,000 in Mini Grants to 18 K-12 teachers in Louisiana for the development of curriculum-based, heritage education activities using 169 local cultural and historic sites as content. An awards ceremony was held which honored new grant recipients as well as past grant winners as part of Preservation Week. The reception that followed the awards ceremony offered selected teachers a public forum to showcase and discuss their grant projects. Nancy Hawkins from the Division of Archaeology conducted a morning workshop for 2004-05 Mini Grant recipients to discuss grant policies and procedures. The Division of Archaeology in the Office of Cultural Development under the State Historic Preservation



Office is again administering the grants. More than 8,000 students have been affected by HE-LA through Mini Grants this year.

Partnerships

For the second consecutive year, Heritage Education – Louisiana was chosen to host an intern through the National Park Service's Cultural Resources Diversity Internship Program. Only 10-20 preservation-oriented organizations from across the nation are chosen to serve as hosts for interns. This year HE-LA hosted Jessica Humphries, a Public History student from the University of North Carolina at Greensboro. Humphries worked with HE-LA for ten weeks during the summer.

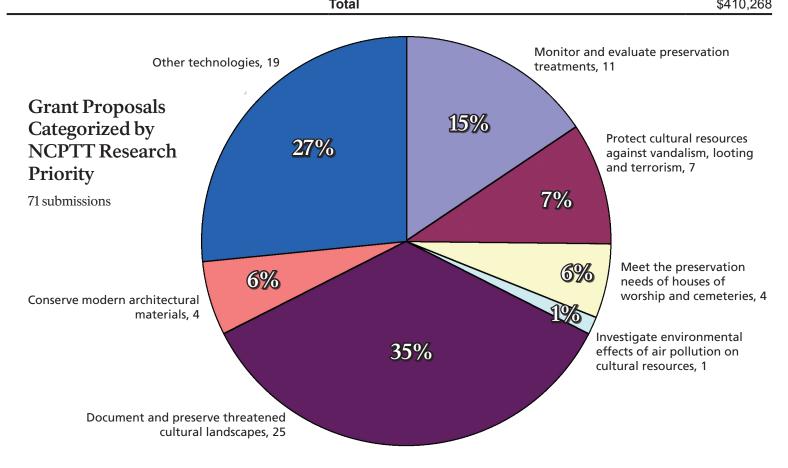
Teachers in Abbeville, Louisiana, participate in a scavenger hunt at one of the town's historic cemeteries.



Mike Wang, policy director for Louisiana Lt. Governor Mitch Landrieu, spoke on the importance of incorporating local heritage into the educational curriculum during Heritage Education–Louisiana's 2004 grants ceremony in Baton Rouge.

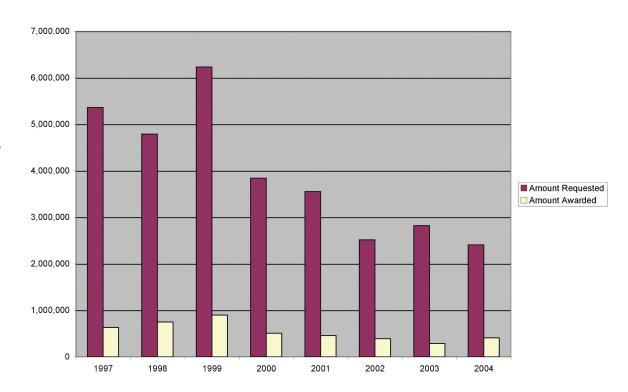
PTTGrants Awarded in 2004

Applicant	Title	Amount
Water Transport Characteristics of Masonry Restoration Mocky Mountain Masonry Institute Water Transport Characteristics of Masonry Restoration Mortars		\$39,400
Pennsylvania State University	Unreinforced Load-Bearing Masonry Structure Assessment by Modeling, Validation, and Testing	\$40,000
University of Utah Marriott Library	Protocol for Emergency Washing, Drying, and Sterilization of Historically Significant Books	\$39,790
University of Colorado at Denver	Microbial Detoxification of Mercury Contaminated Museum Collections	\$37,000
Mississippi State University	Using the General Land Office Records to Enhance Identification of Cultural Landscapes in North Mississippi	\$38,400
The Masonry Society	Creating an On-line Library: Electronic Conservation and Distribution of 85 Years of Historic Masonry Articles	\$12,300
Friends of Old Mobile, Inc.	Complementary Geophysical Survey Techniques at Old Mobile	\$33,400
Texas A&M University	Supercritical Fluid Cleaning of Perishable Organic Artifacts for Non-destructive Radiocarbon Dating	\$20,000
Confederated Tribes of the Umatilla Indian Reservation	Evaluation and Monitoring of Culturally Appropriate Treatments for Vandalism at Rock Image Site	\$40,000
National Trust for Historic Preservation	Lustron On-line	\$30,678
Texas A&M University	The Survey & Documentation of Point-du-hoc Historic Site	\$40,000
University of Colorado at Denver	Load Paths in Historic Truss Bridges	\$39,300
	Total	\$410.268



PTT Grants Requests and Awards 1997-2004

In 2004, NCPTT funded 12 PTTGrants totaling \$410,268. The proposals received peer review and were selected by a panel consisting of NPS staff, a PTTBoard representative and Grants administrator. The graph to the left shows the total dollar amounts of proposals submitted and grants funded for fiscal years 1997-2004.



Distribution of Applications By State

The most recent PTTGrants Call for Proposals drew 71 requests totaling almost \$2.5 million. Proposals were received from 31 states, Guam, and the District of Columbia. The map to the right graphically depicts the geographical distribution of grant proposals received for the PTTGrants program.





National Park Service U.S. Department of the Interior

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The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to tribes.

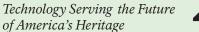
National Park Service

The National Park Service preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education and inspiration of this and future generations. The Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

NCPTT

NCPTT promotes the preservation of prehistoric and historic resources in the United States through applied research and professional training. NCPTT is located on the campus of Northwestern State University in Natchitoches, Louisiana.

NCPTTAnnual Report Technology Serving the Future 2004



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